"When you get diabetes, you have to take medicines for the rest of your life if you want to manage it. It is simply not curable."

This has been the most prevalent opinion about diabetes among people for a long time now.

But is it true?

Well known author Sujatha Desikan, under the guidance of Dr. Vijayaraghavan, has managed to cure himself, completely, from Diabetes. In this book, he explains clearly and meticulously, how he accomplished this feat.

Anyone and everyone can follow and benefit from these scientific and proven methods. This book is proof that it is indeed possible to say a permanent goodbye to Diabetes.

This book began as a weekly series in the tamil magazine Kalki. It wasn't long before the series captured the collective attention of its readers and earned their praise. Consider this book to be your ticket to freedom from Diabetes!

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BOOKS

Defeating DIABETES

Dr.S.Vijayaraghavan, Sujatha Desikan

A tested and proven solution to get rid of diabetes!

DEFEATING DIABETES

Dr.S.Vijayaraghavan
Sujatha Desikan

Defeating Diabetes

Dr. S. Vijayaraghavan

A primary care physician he has been practicing in Chennai since 1980. After his indepth study 'Type 2 diabetes', he came to understand that it is only a dietary disorder and can be reversed by diet within 3 to 4 months. He has been creating awareness and promoting the change of lifestyle and diet for reversing diabetes through his Intensive Dietary Approach Program (IDAP). For this he was awared the K. Venkatanarayana TANKER Foundation Awareness Award.

N. Desikan

N.Desikan, better known by pen name 'Sujatha Desikan' is an IT professional based out of Bangalore. Besides short stories, he has written various articles in print magazines. He frequently travels and blogs.

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A Chartered accountant and freelance writer from Chennai, she has been published in the The Hindu, First Post and a number of other print and online news publication. This is her first book in translation.

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Defeating Diabetes

Dr.S.Vijayaraghavan
Sujatha Desikan

OXYGEN
BOOKS

Defeating Diabetes
Dr.S.Vijayaraghavan, Sujatha Desikan ©

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to
Dr.Vijayaraghavan
who saved me from diabetes

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Introduction

If someone had told me two years ago that I would be involved in the making of a book about medicine, I would not have believed them. This book is the result of surprising coincidences, and coincidental surprises.

Two years ago, when I was in Chennai on some work related matters, I got a sore throat, and consequently, fever. And so, I went to see Dr. Vijayaraghavan - a general physician in T.Nagar to whom I was introduced to fifteen years ago. The clinic had not changed much from the last time I had been there. It was while waiting when a signboard caught my eye, and sparked my curiosity. It had two statements written on it:

'Medical reps selling Diabetes medicines like Suphonylurea are not allowed here' and 'Do you have Diabetes? We can reverse it!'

When I discussed this in detail after meeting Dr.Vijayaraghavan, I gained a lot of clarity. He singlehandedly dispelled the myth that diabetes patients had no choice but to take medicines for the rest of their lives, and I stand as proof that diabetes, can indeed be reversed. I wrote about my experience as a 12 part weekly series in Kalki Magazine.

The readers' response to the series was incredibly positive, and we know for a fact that it gave many of them a renewed hope in dealing with, and defeating diabetes.

The series would not have been a reality without Dr. Vijayaraghavan, who not only provided awareness, but also guided me to success. I am also grateful to Venkatesh, the editor of Kalki magazine, who convinced me to write about this journey.

Now, with the help of my publishers, Kizhakku Pathippagam, I have compiled my series into a complete book, along with a few extra chapters. If this book manages to reach out to even more people, and creates increased awareness among Diabetes patients, I will be overjoyed.

- Sujatha Desikan

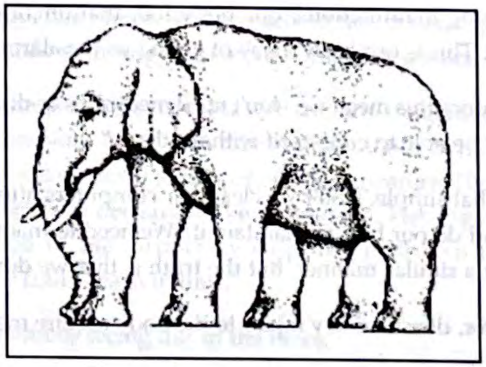
CHAPTER ONE

Our Body, Our Health

'The only way to deal with diabetes is to take medicine for the rest of your life. It is not something that can be cured. So how is it possible that you say you cured yourself of diabetes? Isn't this the question that everyone around you is asking?'

'Yes, Doctor'

'Here's the answer to your question', said Dr Vijayraghavan, handing me a picture. How many legs does this elephant have?



Don't elephants have only four legs? I thought to myself as I looked at the picture suspiciously. I couldn't make out if the elephant in the picture had four, or five legs. Sufficiently confused, I told him, 'It's just an illusion'.

'Yes. Everything depends on the perspective with which we see it. We're constantly amazed by new technology, be it twitter, google, or the latest iPhone. But when was the last time you were amazed by your own body?

Just like computers, our bodies too have been programmed to live a healthy, disease free life for one hundred years. This 'programme' of the body includes the ability to keep itself healthy and to heal on its own.'

'Wow!'

'However, computer programmes are vulnerable to virus attacks. Similarly, today, our body is vulnerable to attacks by way of Diabetes, Blood Pressure, Obesity, Cholesterol, Thyroid, Auto Immune Deficiencies, Cancer, Alzheimer's, Amnesia and many more diseases. This is how our bodies have responded to our changing life styles.

So, to put it simply, just like how a virus affected computer programme malfunctions, our body too, malfunctions when attacked. This is our body's way of giving us the alarm signal.'

'Doctor, does this mean we won't need medicines or drugs? Will my body be able to cure itself without them?'

'It's not that simple. Don't we clean our computers after a virus attack and do our best to maintain it? We need to maintain our bodies in a similar manner. But the truth is that we don't.'

'But doctor, doesn't every injury to the body require medicine?'

'Definitely. There are three kinds of injuries that our bodies can encounter. They're known as 3-Ts: Trauma, Toxin, and Thought!'

'Suppose we fall down on the ground and hit our knee - would that be considered as Trauma?'

'Correct.'

'I am guessing 'Toxin' relates to the contamination, pollution, smoke etc that's around us.'

'Yes. Toxins are the reason why we get Food Poisoning sometimes.'

'And the last T, Thought, relates to worry. Stress that arises from problems in both family and the workplace.'

'When we are affected even by one of these three Ts, our brain is forced to make a decision - it can either become the hero and save us from harm, or become the villain and make matters worse.'

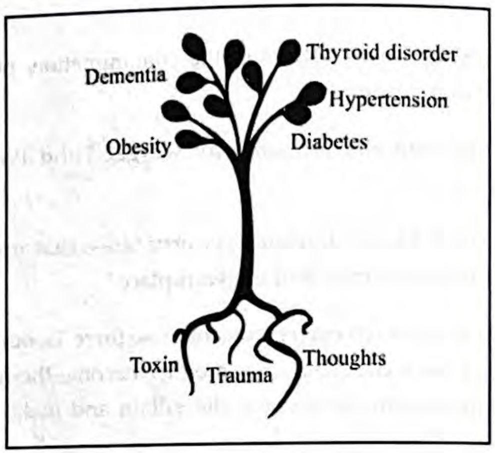
'The Cave Man lived in the wild, with the wild, and yet, managed to keep himself from harm and survived. Today, surrounded by the latest in technology and scientific development, man is capable of taming beasts, but he has fallen prey to disease.'

'Maybe, but I don't think we can discount the immense progress we have made with respect to modern medical science.'

'Doesn't a single coin have two sides? Similarly, modern medicine also has two sides to it.I remember in the month of July I read about an accident that had happened in Coimbatore. The victim, a young girl, was declared to be brain dead. Her organs were transported to the airport by stopping traffic so that the ambulance could reach in time.'

'Yes, I remember seeing this in the news.'

'One kidney was donated to KG Hospitals, and the other, to Ramakrishna hospital. Her liver was donated to MIOT Hospital in Chennai, and both her eyes were given to Coimbatore's Shankara Nethralaya. Her heart, which was donated to the Madras Medical Mission, was transplanted immediately. These donations from a single person gave a new life to six different people. This is the bright side of modern medicine. However, when it comes to treating chronic, that is, persistent illness, the medical industry is making many mistakes, which in turn is spoiling countless lives.'



'Please explain how, Doctor.'

'Today, Thyroid, Diabetes and heart issues are all household names. Sure, there are a number of medicines to treat these problems, but instead of finding a permanent cure, medical science is only making things worse.'

'How so?'

'Diabetes and obesity are problems caused by disorder in metabolism. Metabolism is the process in which our bodies transform food into energy. Now, imagine a tree in your mind. Remember the 3-Ts we talked about a while ago?'

'Trauma, toxin and thought!'

'Yes, now these are the roots of this tree. When you succumb to any one of these issues, your body reacts by going through certain chemical changes.'

'Aren't these chemical changes, what we call hormones?'

'Yes. When we have sugar, the hormone insulin, and when we are stressed, the hormone cortisol, are secreted by the body.'

'Aren't these necessary?'

'Everything is necessary. But the problem starts when there is either an excess or a deficit of these hormones in the body. So the roots, namely, trauma, toxins and thoughts, give rise to the tree of problems with branches like Diabetes, Hyper Tension, Obesity and Thyroid.'

'Oh!'

'Modern medicine will help you cut the branches, but ignores the roots. Taking tablets might control disease, but it actually inhibits the body's natural, and extraordinary ability to heal itself. Think of a cycle chain. When you keep adding oil to your cycle chain, it slips and falls off. Similarly, taking too many tablets has a detrimental effect on our bodies.

I'll give you another example - our bodies are like kitchen sinks! When the water that passes is clean, the sink is well drained. The moment you use dirty water with particles in it, the sink gets clogged with filth and muck. The 3-Ts are the filth that clog our bodies.'

How does one get rid of this filth? We find out in the next chapter.

CHAPTER TWO

Our Body is Our Very Own AK-47

'Doctor, I have another question for you: Will we get diabetes if our parents are diabetics?'

'That's a good question. We call this Epigenetics.'

'What does that mean?'

'The constantly changing environment and our own habits are capable of modifying our bodies, and our genetic makeup in such a manner that disease gets passed on from generation to generation, that is, from the grandparents to the grandchildren!'

'That's interesting. So you're saying that our genes just change?'

'Our DNA doesn't change - that takes many thousands of years. However, the cells that make up our body, have certain mechanisms that are capable of modifying our genes. This is epigenetics. We don't inherit just property from our parents and grandparents – we inherit their smoking habits, their drinking habits, their bad eating habits, and their stress, all by way of Epigenetics.'

'Is this the reason why we get diabetes when our parents are diabetics?'

'Not really. If the son makes the same mistakes as his father, he will get diabetes very easily. If he is cautious, however, he can avoid it. For example, ten years ago, only one in four thousand had diabetes. Today, one in four have diabetes, pre-diabetes or obesity.

'So, can we assume that our body is like an AK-47 gun, and epigenetics, the bullets? So if we don't take care of our lifestyle, we're just preparing to shoot ourselves!'

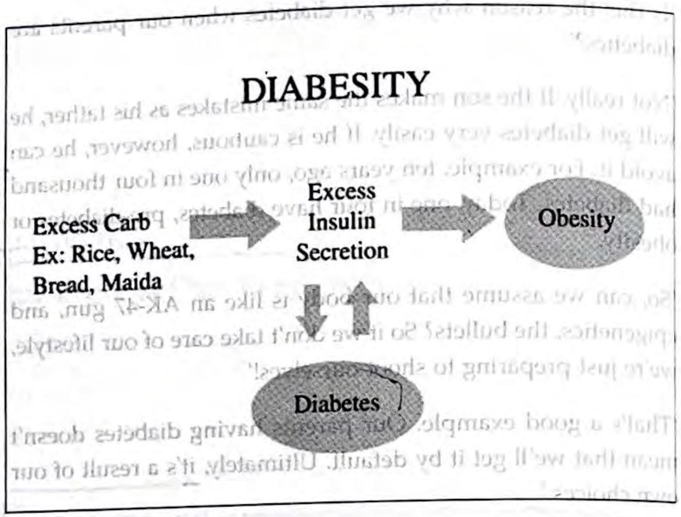
'That's a good example. Our parents having diabetes doesn't mean that we'll get it by default. Ultimately, it's a result of our own choices.'

'Doctor, is the medicine we consume, also capable of affecting our children?'

'Definitely. It's almost tragic to think that modern medicine, well equipped with the latest technology, continues to prescribe drugs that contain chemicals which are capable of making us susceptible to disease. Research in epigenetics has proved that these chemicals make us vulnerable to not only diabetes, but also Auto Immune Deficiencies, Alzheimer's, Cancer, and other deadly diseases.'

'That is terrifying. Doctor, why do our bodies put on weight? What does obesity have to do with diabetes?'

'There is a connection. Excess insulin in your body leads to obesity, which in turn brings about Type 2 Diabetes. Obesity and Type 2 Diabetes are like Siamese twins – inseparable to the point where researchers decided to call the phenomenon, 'Diabesity'.



I'd like you to go pick up an old photograph of your grandparents, or of your family from their time. Even a cursory glance will reveal that most of the people in the photos are thin. In comparison, look at a picture of school children today. There will be four kids taking up the space of eight.'

'When did this epidemic start?'

'It isn't something that happened overnight. Obesity has been on the rise for the last twenty years. In 1990, the obesity rate in America was 20%. In 2010, however, it was a whopping 40%.'

'What about India?'

'We are on the podium with third place. From 1980 to 2013, there's been a 50% increase in obesity. Statistics show that Chennai alone has seen an increase of 70%.'

'But how is this possible? I see so many people going for walks these days.'

'If you observe these people going on these 'walks', you can see that they walk like they're part of some sightseeing tour. That you can become slim and healthy by taking a few leisurely rounds in a park is a false notion. You could even call it a myth.'

'Are you saying that exercise is pointless?'

'There are obvious benefits to exercising. However, it is wrong to proclaim that exercise alone can solve weight issues. Take the case of England – exercising has increased by 32% among its people from 1997 to 2008. However, obesity has also increased at the rate of 10% during this time. It isn't just England. Exercising has also increased by 20% in the United States of America. Everyone wants to be slim. But look at Italy and the Netherlands – they don't exercise as much, but they don't face the problem of obesity either. So exercise doesn't really have that much of a correlation with obesity.'

'But exercise and diet continue to be the sole prescription for weight loss, even today!'

'Exercise is definitely good, the same way brushing your teeth is good. But, it's not very helpful when it comes to losing weight. If you've noticed, even some doctors are overweight today.'

'So what is the root cause for obesity in our country, then?'

'Think about how life has changed the last twenty years – one of the biggest changes is how often we snack now. We are constantly eating something or the other, and the big corporate companies that manufacture food today are all laughing their way to the bank.'

'I don't understand, Doctor.'

'We're told that breakfast is the most important meal of the day, to the point where not eating it is considered some grave sin.

Children are being made to consume a great deal of milk in the hope that they will get more calcium. We are constantly being brain-washed into believing that eating food labelled with buzzwords like 'Low Fat', 'Low Calorie', '0%', 'Diet' is the only way to stay healthy. Children are lured into eating all kinds of preservative laden nonsense with enticing advertisements loaded with ridiculous promises – you can become Superman, Batman, Hanuman, and so on.'

'True doctor. So many of the snacks that are in stores today were unheard of in our grandparents' time!'

'Not to mention the fact that they're loaded with artificial preservatives whose names are impossible to pronounce. This is one of the reasons why diabetes has become as common as cold and cough. 80% of the diabetic patients are overweight. The International Diabetes Federation announced in 2014 that diabetes takes a life every seven seconds. And that we are encouraging this disease by not making the necessary changes in our life is similar to taking a gun and shooting ourselves.'

★ 'Doctor, I once read that it was only humans who can become overweight, and that animals don't become overweight. How true is this?'

'It is true. Generally, elephants, whales, dogs, chickens don't become overweight. Having said that, animals that are domesticated, and pets, are very much capable of becoming overweight. This is because they eat what we eat, instead of foraging in the wild.'

'But doctor, the elephant in the wild and the whale in the ocean eat more than 50 kilos in a day, and yet, never become fat. On the other hand, human babies today are born overweight. How is this even possible?'

'This is due to the hormonal changes that are caused by the food that we eat. Hormones are the same reason why rats in labs are significantly more overweight than rats in homes! Not only that, these overweight rats end up getting the same diseases that we do, including diabetes.'

'How so, Doctor?'

'From 1930 to 1960, scientists used rats to get a better understanding about the disease. They used small needles to get access to the section of a rat's brain known as hypothalamus. Once they gained access, they were able to modify the hormone levels in the rat's body. It wasn't long before they realized that humans worked the same way - the hypothalamus is the section of our brain that controls our hormones, too.' ★

Do you know which hormone was found to be responsible for weight gain and diabetes? I'll tell you in the next chapter.

CHAPTER THREE

Generation XXL

'Doctor, are people overweight because they overeat? Or do people overeat because they are overweight?'

'Have you ever seen rust that collects on iron furnishing in the house?'

'Yes doctor. I've even seen stainless steel gathering rust!'

'Really? If you've noticed, the process of rusting isn't one that happens overnight.'

'Yes doctor, rusting happens over the course of months, and the metal has to be exposed to water and moisture throughout.'

'Exactly. There are a lot of factors that contribute to rusting, such as exposure to moisture, humidity, and the composition of the metal itself. Obesity is similar, in the sense that there are multiple factors which contribute to it. But do you know the easiest way to become overweight?'

'I don't'

'It is to take insulin continuously, and when you do, it doesn't matter how much you set your mind to exercise well and eat a restricted diet. Weight gain is assured.'

'But doctor?'

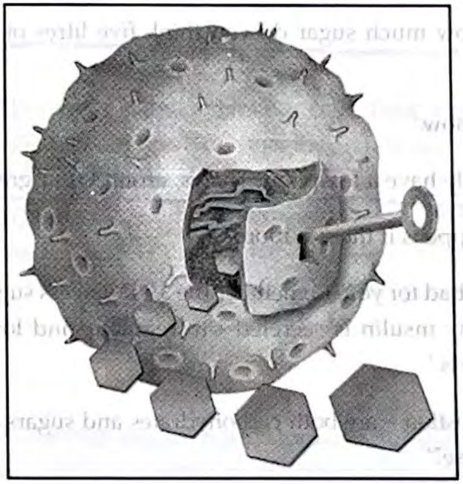
'Insulin is a hormone. In order to understand how insulin works, we need to understand how hormones work. Hormones are molecules which deliver messages to the cells in our body, regulating them and controlling them.'

'This is too technical for me.'

'Simple. Let's say you eat a Gulab Jamun now. The sugar from the Gulab Jamun goes into your bloodstream. Immediately, the hormone insulin, sends a message to your cells…'

'…to convert the sugar into energy!'

'Yes. When we eat, food gets broken down in our stomach and small intestine. We can categorize food based on its predominant



nutrient in three different ways: Carbohydrates, Proteins and Fats. Proteins get broken down into amino acids. Fats are broken down into fatty acids.'

'What happens to carbohydrates?'

'Sugar and carbohydrates get broken down into glucose, which flows into the bloodstream. Almost every cell in our body uses glucose. When glucose levels rise in our blood, another hormone called incretin is released.'

'Why is that?'

'The incretin hormone stimulates the pancreas to produce insulin, which in turn brings down blood sugar.'

'Wow!'

'Now I have a question for you. How many litres of blood do we have in our body?'

'I'm not too sure, doctor. Somewhere around 5 litres?'

'Okay, how much sugar do you think five litres of blood can contain?'

'I don't know.'

'It can only have a teaspoon. That is, around four grams.'

'What happens if there is more?'

'Well, it's bad for you. Remember the 3 Ts? Excess sugar is toxic. That's why insulin is secreted - to regulate, and lower blood sugar levels.'

'I've a question – are both carbohydrates and sugars converted into glucose?'

'Yes, both carbohydrates and sugars are converted into glucose when consumed.'

'What happens to this glucose?'

'It is used as fuel by the body. The extra, leftover glucose is stored for later use in the form of glycogen.'

'Where does this happen?'

'This process happens in the liver and in the muscles of the body. But you can't save much there, because the liver and the muscles are like balloons – there's only so much air you can blow into them.'

'But what if there's extra glucose over and beyond what has been converted into glycogen?'

'It means you have diabetes. The medicines that you take, whether tablet or insulin, increases the secretion of insulin in the body, which converts the extra sugars into fat. That is also the reason you put on weight.'

'Oh my god!'

'Let me tell you how glucose enters our cells. First, we have to imagine the cell to be a room. Now imagine that there is a lock on the door – this is the cell's insulin receptor. Insulin, is the magical key to opening this lock. Insulin has to open the door, and deposit the glucose inside. That's how you get energy – to run, to walk, to speak, to think, to check Facebook and Whatsapp, everything. Now I have a very elementary question for you.'

'Go ahead, Doctor'

'Let's say that the food you ate had 20 molecules of glucose in it. Those twenty molecules have to be distributed among ten cells.

If one 'key' of insulin is capable of transferring two molecules, how many such 'keys' of insulin should the body produce?'

'Ten.'

'Yes. But what if the key doesn't work properly? That's the problem. Let's assume that these ten 'keys' of insulin is only able to send ten molecules of glucose into cells. What do you think happens to the leftover molecules? How do we make sure that they're delivered to the cells?'

'We need to create more keys.'

'Yes. The key is insulin. The more insulin keys you secrete to open cell doors, the greater the chance of your 'locks', that is the insulin receptor, getting damaged. And this eventually leads to insulin resistance.'

'What is that?'

'You went on a group tour to some temples last week. Did any of your fellow travellers bring their children along?'

'Yes doctor, some people even brought their new-borns along.'

'Did you notice how the babies slept through noise?'

'Yes doctor, even I was surprised as to how well some babies managed to sleep despite the din that was being created outside'

'You might have seen this phenomenon even in railway stations, theatres and bus stands. But the same baby which was capable of sleeping peacefully in such noisy environments will wake up at home the moment the door makes even a light creaking sound.'

'Yes doctor! I've seen this myself. How?'

'The babies which sleep in the railway stations and theatres got themselves used to the sounds around them. Rather, they learned to resist the noise around them!'

'I had no idea. But does this mean that even the lullabies and rhymes that we sing to them, are also noise?'

'If I say yes, I'll have a set of mothers ready to pick a fight with me. There are many things that the body is capable of resisting.'

'Such as?'

'There are many instances, but the more significant point is how we develop resistance. Whenever our bodies are confronted with a change in environment that affects it, it fights to do whatever it can to bring itself to its previous, or normal state. It knows how to keep itself warm in winters...'

'...and cool in summers! Isn't that why we sweat? To regulate our temperatures?'

'Exactly. The body knows how to adapt itself based on its environment. That's one of the reasons why human beings have lasted so long on our planet. Now let's go back to Insulin Resistance. Do you think Insulin Resistance is necessary?'

'Insulin works to lower sugar levels in your bloodstream, by increasing absorption in the cells. But if your blood sugar reduces too much, then you'll be in a 'low sugar' state: where you'll be dizzy and can't function normally. Hence, insulin resistance is required. Am I correct?'

'Correct. But too much insulin resistance is a problem. In fact, insulin resistance isn't the only resistance we should worry about. Consuming antibiotics like chewing gum, or using the wrong antibiotic or an increased dosage, creates antibiotic resistance, which is a whole other problem.'

'How doctor?'

'Did you get measles as a child?'

'I did, doctor.'

'You'll never get measles again in your lifetime!'

'How are you so sure?'

'Measles are caused by a virus. When you got measles as a child, your body learned to fight it, and produced antibodies to kill it. So you won't get measles again because even if you are exposed to the virus, your body has an antibody ready to terminate it before it can create problems.'

'Ok, what about insulin resistance? Does it work similarly?'

'Insulin resistance works the same way alcoholics do. When you start drinking, you get 'buzzed' with very little. Then as you keep increasing the number of drinks you take over time, your body learns to resist alcohol more, and so, it will take a lot of drinks to get you to the state of drunkenness.'

'Will insulin resistance increase because I take more insulin, or am I taking more insulin because of insulin resistance?'

'This is a chicken and egg question. Insulin resistance is actually a vicious cycle. One leads to the other and before you know it, you're in too deep.'

'What has this got to do with obesity, doctor?'

'Let me tell you about another hormone called Leptin.'

'Leptin?'

'Yes. In the year 1890, doctors were working with a young boy who had suddenly become obese. It was while investigating this issue that they discovered that the connection between the neurons in the hypothalamus and our body's propensity to put on weight.'

'So leptin was discovered in 1890?'

'Technically Leptin was discovered in 1994. Leptin is Greek for 'slim'. Leptin is the hormone that signals fat absorption in the body.'

'What kind of signal?'

'The signal that you've eaten enough and don't need anymore! If you show a quarter kilo box of Mysore Pak to a little boy, he will have one, at most, two pieces, because it will get sickly sweet for him. Cloying, even. Now, if that box were in the house of a diabetic man, he will raid the fridge for one piece and end up eating till there's only one piece left.'

'Yes doctor. I must confess that even I have...'

'This isn't just your issue. So many diabetics have the same problem because the neurons in your hypothalamus isn't receiving the signals that the hormone leptin is sending!'

'But why isn't Leptin working?'

'It isn't working because of the excess insulin, which delays the leptin. That message of 'you've had enough' to the brain to stop eating is delayed. And so, more leptin is produced. What happens when more and more leptin is secreted? You should know the answer by now.'

'Leptin Resistance.'

'Correct. There's another part in the brain called Nucleus Accumbens. You can consider it to be our reward centre - for this is the part that makes us feel satisfied and rewarded. When we eat something delicious, like Mysore Pak, we feel happy and we feel good. It takes place in this part of the brain. When leptin doesn't work, the happiness and satisfaction that you ought to get from one piece of Mysore Pak won't come until you finish the box. Sometimes it might not come even after you finish the box.'

'Again,isn't this similar to how alcoholics function, doctor? They don't know when to stop.'

'Yes. The excess insulin delays the working of leptin, and as a result you're continuously hungry. And so, you eat more, and as a result, more insulin is secreted to absorb the extra sugars. This leads to insulin resistance. And as a result you take more insulin. This goes on - finally you end up obese.

So to answer your first question, I will quote Gary Taubes: We are not fat because we overeat. We overeat because we are fat!'

'This such a shocking revelation! Insulin is far greater a problem than Diabetes.'

'Just like how too much exposure to moisture causes rust and repair, too much insulin causes insulin resistance, and as a result, our kidneys, our heart and our livers become damaged. This is why Diabetics are at the greatest risk for organ damage.

Dr Joseph Kraft spent a good part of his life researching this, and we will look into it in the next chapter.'

CHAPTER FOUR

Diabetes is Predetermined

'The life of Dr Joseph Kraft is very interesting. In 1976, he split 14000 people into two groups: people with diabetes, and people without. He then gave both groups the OGTT test.'

'What is the OGTT test?'

'Oral Glucose Tolerance Test. Basically, you are given glucose on an empty stomach, and doctors check how your body has reacted to this glucose after two hours.'

Dr. Kraft

'I'm guessing that those people who had diabetes had higher blood sugar levels.'

'Yes, expectedly, those with Diabetes reported higher blood sugar levels. But Dr Kraft was smarter than that. He then proceeded to do another test.'

'What was that?'

'He went on to measure insulin levels among the patients who had taken the test. As it turned out, it wasn't just the sugar levels that were higher, the insulin levels were also higher.'

'This isn't surprising, is it?'

'It was definitely a surprise among those patients who thought they weren't diabetic.'

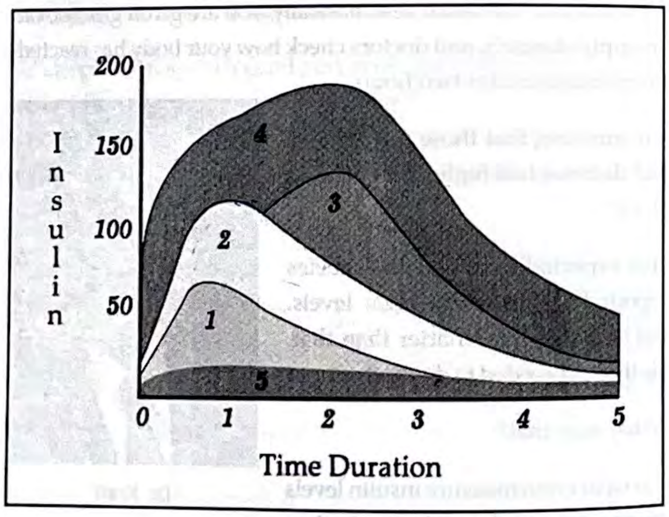
'But doctor, surely the sugar levels would have been normal among the non-diabetic patients?'

'The sugar levels were fine. However, insulin levels for 3 out of 4 people, that is nearly 75%, were higher than normal. Dr Kraft predicted that these people are prone to diabetes, and that they would be vulnerable to heart and kidney problems, because these are the organs that are most affected by diabetes.'

'Did his predictions come true?'

'They did. Here is a chart that was part of his research.'.

'The 5 lines represent the insulin levels of 5 groups of people.



Those belonging to group 1 experienced a spike in insulin levels, but after three hours, their insulin levels down again. These people were categorised as 'normal', and weren't diagnosed with problems in the future.

The people belonging to Group 2 also experienced a spike in insulin, but the increase was greater than that of group 1's, and it took 4-5 hours for their insulin levels to return to normalcy.'

'Isn't this hyperinsulinemia?'

'Yes. Now, Groups 3 and 4 also recorded an increase in insulin levels, and it took them 5 or 6 hours to return to normal.' (Group 5 is Type 1 diabetes not discussed here)

'If there's going to be increased insulin in the bloodstream, won't that lead to insulin resistance?'

'Yes! And as insulin resistance builds, you can bet that they'll be looking at Diabetes in the eye in ten, fifteen years.'

'But doctor, we only look at blood sugars these days - is this an incorrect way to test?'

'Not really. Let me explain: when insulin levels increase, the body develops insulin resistance. When the body has increased insulin resistance, blood sugars don't decrease. So if both blood sugars and insulin levels are high, it is a double edged sword.'

'So, sugar is only a catalyst — rather, a henchman! The real villain is insulin.'

'You got it.'

'So if you're going to keep pumping insulin into diabetes patients, things are only going to become worse!'

'I'll tell you how. Now, every time you come to Chennai, you come with a suitcase, right?'

'Yes.'

'Let's assume that you have just finished packing. Suddenly you realise that you've forgotten to pack the two new shirts you purchased during this trip. However, your suitcase is just about full - there's no place, and you don't have the heart or the time to take everything out and repack. What do you do?'

'I suppose I'll put the shirts in, apply pressure on the suitcase, and close the zip.'

'Ok, now you have to pack an extra towel. What'll you do now?'

'That's hard - I'll sit on the suitcase to stuff it all in!'

'Let's assume you continue stuffing in more clothes this way. What's going to happen to your suitcase?'

'If it could talk, it would cry! The zip would probably break, and there's a chance that the fabric rips in a weak spot.'

'This is exactly what happens in our body. Our cells are the suitcase. Glucose is represented by the clothes in the suitcase, and it is insulin that is trying to stuff it all in.

Now, if you don't have much sugar in your bloodstream, the insulin can 'close the suitcase' easily. The more sugar in your bloodstream, the more insulin that has to be secreted to ensure that cells absorb all of it, or to sit on the suitcase to snap it shut. If you keep secreting insulin in this fashion, it won't be long before your body requires repair!'

'Oh, is this why diabetes patients always have problems related to the heart, kidneys, liver and eyes? So is taking tablets for diabetes, the wrong course of action?'

'If you keep taking tablets daily, you can be assured that at least two organs will give way. It's just a matter of time.'

'But... What about those diabetic patients who take tablets daily?'

'I just pity them! Think of it like this. When alcoholics stay away from liquor, their bodies literally start shaking. If you want to cure an alcoholic, you don't give him alcohol when he starts experiencing withdrawal symptoms. It's the same for diabetes patients and their tablets.'

'I have another doubt - we are told that diabetes patients are at a higher risk of heart attacks and heart disease if they have high blood sugar and insulin levels. Why is that?'

'It's not just heart disease. They are also vulnerable to cholesterol, fatty liver, eye problems...the list seems never ending. Let me begin with the liver. Remember what I told you about glucose: glucose is converted by cells to provide us energy. The sugars over and above our energy requirement is converted into glycogen and stored in the liver, as a reserve for a later day.'

'Like a battery?'

'Yes. The liver is like a purse, in the sense that it cannot store more than a certain amount of glycogen. However, it is very easy to 'spend' this stored glycogen. The excess glucose and fructose (we will talk about fructose in detail, soon) over and above the glycogen that has been stored in the liver, is then converted into fat. This fat, is like a fixed deposit in the bank - it is very easy to accumulate, but that much harder to spend, or get rid off.

After all, if you're constantly going to have money in your purse, why would you reach for your Fixed Deposit? And so, fat continues to accumulate in your liver, and as a result, you end up with fatty liver. Fatty liver is also a cause of heart problems!'

'How?'

'If you're constantly going to have insulin and sugar in your blood, the fat cells, instead of getting burned, are sent to your liver by the enzyme ALT. After this, triglyceride, a kind of fat, starts doing rounds in the bloodstream. This is where the problems begin.'

'What problems?'

'The increase in triglycerides leads to an increase in Low Density Lipoproteins - this is what we refer to as cholesterol. Similarly, there is sLDL (small-dense LDL). It sounds harmless, but when it oxidises, it may as well be the god of death.'

'But don't we have statin therapy to reduce cholesterol?'

'We do, but that is quite harmful too. Studies have shown that statin therapy is effective for only one in 140 people. In fact, 10% of statin users end up getting diabetes because of the drug!'

'Really?!'

'Not only that, you are also at risk for liver issues, memory problems, heart issues, muscle problems, and so on.'

'Succumbing to Statin is definitely not a state in which we should be! Doctor, tell me about sLDL.'

'It is sLDL that clogs the arteries and blood flow, by sticking like plaque on the interior walls of the arteries. This clogging, known as Arteriosclerosis, leads to heart attacks.'

'Arteriosclerosis...sounds dangerous!'

'The blood flows through arteries the same way water flows through rivers. When water flows upstream, it flows in a certain speed, and a different speed when it flows downstream. In the same manner, blood flows in one speed when entering the heart, and in another speed while exiting. We call this...'

'...Blood pressure!'

'Yes. You might have a water motor which brings water from the sump, into your house that is upstairs. If the pipe that's bringing the water up is clogged, your taps will only give you air, while making sounds resembling the snores of a sleeping lion. Arteriosclerosis has the same effect on your arteries - the fat clogs up the pathway in which your blood flows. When the same volume of blood has to flow through a shrunken artery, the pressure increases, and as a result, you now have high BP.

Dr. Kraft said, those with cardiovascular disease not identified with diabetes, are simply undiagnosed!'

'So I guess it now makes sense to not only test sugar levels, but also insulin levels - as a preventive measure!'

'Definitely! Especially for children who are overweight.'

CHAPTER FIVE

Why manage diabetes when you can cure it?

'Doctor, can you please tell me why Diabetes affects the eyes?'

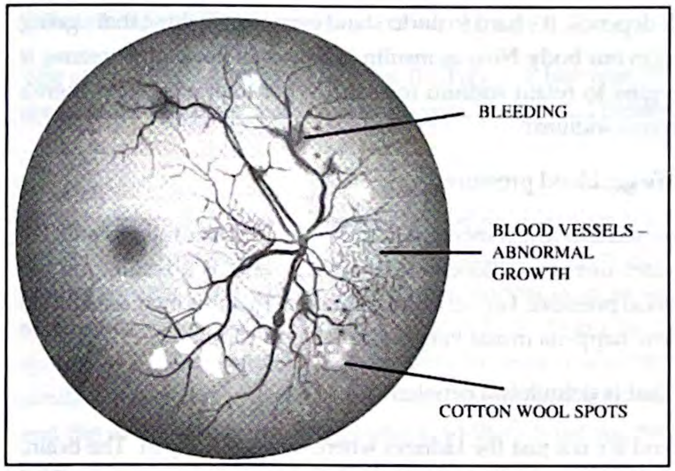
'We call this Diabetic Retinopathy. In India, actually in the world, 20% of diabetics end up getting diabetic retinopathy.'

'Oh!'

'In fact, most people realize they have Diabetes only when they go to the Ophthalmologist because they're having problems seeing properly.'

'Why does this happen?'

'The retina transmits what we see to the brain. It does this through the retinal blood vessels, that are very fine and delicate. You see, blood flows through every part of our body. Now, we already know that excess glucose in the bloodstream is toxic. This excess glucose makes the blood vessels leak, and as a result, blood starts clotting. This can be seen in the eye as yellow or red spots – we call these 'cotton wool spots'. Keep in mind that none of this is visible during the initial stages. It's only when the problem intensifies that it is detected.'



'That means that every diabetic patient should be regular with their eye check-ups!'

'Yes, without a doubt!'

'How do diabetic patients get kidney problems?'

'The primary function of the kidney is to filter the waste from our bloodstream. The kidneys, just like our eyes, also have delicate blood vessels that help the kidney carry out its functions. When there's excess glucose in our bloodstreams, our kidneys have to work overtime to clear it. After a point, the kidneys will just give up! It's similar to the pipes we have at home – if they're constantly exposed to hard or salty water, they start malfunctioning after a point. It's the same case with our kidneys, except instead of salt, it's sugar that's the troublemaker.'

'Does this have anything to do with the fact that diabetic patients tend to pass urine frequently?'

'It depends. It's hard to understand every single thing that's going on in our body. Now as insulin increases in our bloodstreams, it begins to retain sodium (or salt). What happens when there's excess sodium?'

'We get blood pressure.'

'As sodium levels increase in the kidneys, water follows suit. As water increases, blood flow increases, and as a result, you get blood pressure. Let's also not forget that that this increased blood flow happens inside very delicate blood capillaries.'

'That is definitely a problem.'

'And it's not just the kidneys where this can happen. The brain, the feet, the eyes, your teeth, I can go on. It can even increase the chances of cancer.'

'Oh!'

'Let me tell you something else that's interesting – sometimes, it's possible to detect kidney problems in diabetics with a simple eye check-up! Similarly, diabetics is also linked to teeth and gum problems...'

'This is all quite alarming, doctor. And scary!'

'There's nothing to be afraid of. Let me tell you about Mrs. Sudha Venkatesh. She was a diabetic for 8 years. She had tablets for the first four years, but the sugars didn't come under control. And so, she started taking insulin for the next four years.'

'Every day?'

'Yes. 30 units in the morning, 30 units in the evening. And it wasn't just insulin that she was taking – she was also taking drugs for thyroid, blood pressure and cholesterol. I'm sure she was very popular in her neighborhood's medical shop.'

'What about now?'

'She started the Low Carb High Fat (LCHF) diet last year. She doesn't take any drugs now, and as a bonus, she's 17 KG lighter!'

'Wow!'

'In order to eradicate a problem, you should get to its root. If you get typhoid, paracetamol won't work. You might get some temporary relief, but you won't be cured. So you need to take medicines specifically made for typhoid. Now typhoid's symptom is fever, and its root cause is bacteria. Diabetes is similar. The excess glucose in our bloodstream is a symptom, and the root cause is insulin resistance, so that's what we need to fix.'

'So basically, if we just avoid foods that spike our sugar levels, most of our problems will be solved?'

'Yes! I am now going to disprove a lot of traditional food beliefs and wisdom. Are you ready for it?'

'Yes!'

'First, let us break two of the biggest myths about diabetes -

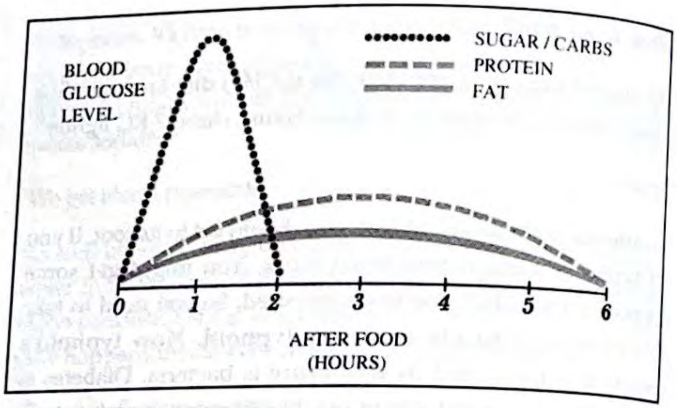
1. Diabetes cannot be cured.

2. The only way to treat diabetes is to reduce sugar in the blood stream.'

'So you're saying that Diabetes can be cured?'

'Yes, because that is the truth. Let's first see which foods trigger insulin secretion. We discussed the three main nutrients a little while ago. Do you remember them?'

'Carbohydrates, Proteins, Fats.'



'Now look at this picure. What do you infer from it?'

'I can see that when we eat carbs and sugar, our insulin levels go high enough to be mistaken for an airplane!'

'Yes. This is what we call a glucose spike. What happens when sugar spikes?'

'Insulin is secreted to control it.'

'We have already discussed how dangerous excess insulin is. So, carbs encourage maximum secretion of insulin. Proteins are next, but they increase insulin levels only by a moderate amount. Fats have the least impact on insulin levels.'

'I've a question, doctor. Forget sugar, do even flour and starch give rise to sugar spikes?'

'Good question. Both carbs and sugar are essentially the same – because both are broken down by the body to become glucose.'

'So does that mean I shouldn't eat carbs?'

'Diabetics should avoid carbs as much as they can. Even if you aren't a diabetic, avoiding carbs is good for building a healthy future.'

'Could you give me a list of carbs?

'Look at this image below.'

'I've seen this picture in many hospitals – this is the food pyramid.'

'That bottom row of bread, potatoes, corn, flour, rice and other grains is the largest. Right on top, the smallest triangle has oil, butter and other fats. This implies that you should have plenty of grains and very little fat. This was published twenty years ago by American nutritionists. Our problems began when we started following this chart blindly.'

'Really? My son made a similar chart for his school project on 'balanced diet."

'Can you believe that we've been teaching our kids wrong information about nutrition all this time?'

'But doctor, I'm seeing the same chart even in hospitals! Don't dieticians consult with the same chart?'

'What can we do? If you follow this chart as a diabetic, not only will you put on weight, but you'll have to take medicines for the rest of your life!'

'Why doctor?'

'Look at the bottom of the pyramid. It lists grains, potatoes, bread, biscuits, pasta, vermicelli and more as foods to be consumed the most. Grains like rice and wheat are carbs. Potatoes have starch. Bread, biscuits, noodles contain maida, which is a refined form of wheat that we can have a separate conversation about.'

'What do these foods have to do with sugar?'

'It's all about the chemistry, which we will see in the next chapter.'

CHAPTER SIX

The many forms of sugar

'Whenever you buy a gadget or an appliance, you get a small user guide or manual along with it. I think we need to publish a user guide for all those with diabetes.'

'Definitely. But before we do that, we need to clarify a few things for our readers -

1. If you are already taking tablets for diabetes, you need to consult your doctor and take his advice about discontinuing them and following these guidelines. Do not follow any of the guidelines without the permission and consent of your doctor.
2. If you follow these diet guidelines while taking your medicines, you may experience a 'low sugar' situation. So, anyone who wants to follow this must be in possession of a glucometer.

'Thanks doctor. It really is imperative that our readers don't blindly read and self-diagnose. This guide is primarily to create awareness.'

'Yes. At the outset, diabetic patients need to truly believe that their condition is curable, and in order for that to happen, they need to understand that their diet and lifestyles need to undergo a permanent change.

Before I talk about the diet, I will explain what carbs are. We would have about learned photosynthesis in IV standard, that is, the process by which plants convert the rays of the sun into food and energy. Do you remember it?'

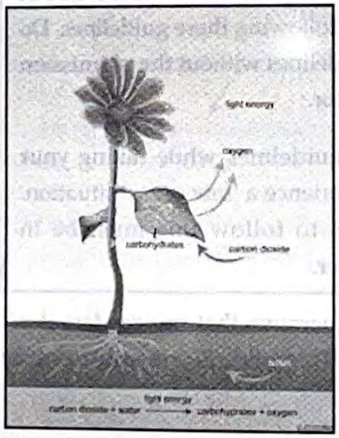
'Yes doctor. The plants take in carbon dioxide and water, and then convert it into carbohydrates for itself, while releasing oxygen into the air.'

'These carbohydrates are the building blocks of every life form, be it plants, animals or even bacteria.'

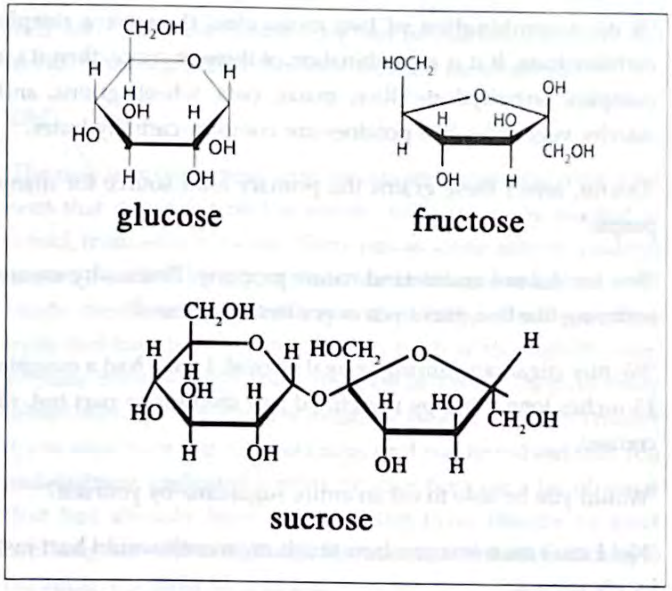
'Ok doctor. I understand that diabetic patients can't have sugar. But what have carbohydrates got to do with it?

'Look at this picture.'

'Everything looks the same to me, doctor.'



'All of these compounds or substances are made of carbon, hydrogen and oxygen. However, they are arranged differently. Glucose (blood sugar) has a hexagonal arrangement, Fructose (fruit sugar) has pentagonal arrangement. We have already discussed glucose. Fructose is the sugar that is present in all fruits. However, it cannot flow through the bloodstream like glucose. Instead, it goes straight to the kidneys. Now look at the arrangement of sucrose, which is the sugar that we consume everyday. What do you see?'


glucose

fructose

sucrose

'It looks like it is a combination of glucose and fructose, being held together by oxygen.'

'Yes, that's all it is. Sucrose is what is we add to our coffee and store in our kitchen shelves. It's called sugar, but we should be calling it white poison.'

'Poison?!'

'Yes, poison. Sucrose is the combination of glucose and fructose. It is these combinations that we call carbohydrates.'

'Ah! So, carbohydrates are just another form of sugar.'

'If it's a combination of two molecules, then it's a simple carbohydrate. If it is a combination of three or more, then it's a complex carbohydrate. Rice, maize, oats, wheat, grains, and starchy vegetables like potatoes are complex carbohydrates.'

'Doctor, aren't these grains the primary food source for many people?'

'See, we did not understand nature properly. That's why we are suffering like this. Have you ever eaten sugarcane?'

'We buy sugarcane during Pongal festival. I have had a roughly 18 inches long piece by myself. I'd spit the fibrous part out, of course.'

'Would you be able to eat an entire sugarcane by yourself?'

'No! I can't even imagine how much my mouth would hurt just by chewing it.'

'When you think about it, the parts of the sugarcane that you spit out as waste, are all fiber. Mother Nature is very intelligent. She gave us sweet fruits, but fruits are more than just sweet. They are beautifully packaged creations, full of nutrition and fiber as well. Take the case of the apple. You can have one apple, at the most two. If I ask you to eat half a dozen apples, you'd say it was just not possible! But what are we doing now? We take four apples, put it in a blender, filter the fiber, and proceed to drink this harmful concoction called juice! As if that wasn't enough, some people add sugar to this!'

'But doctor, isn't juice supposed to be good for children?'

'Mother Nature never prescribed juice. It's the mothers in advertisements that talk about the supposed benefits of juice. Did you know that removing the fiber from juice increases its shelf life? That's the reason juice can be marketed all over the world. Fiber is good for the body, but bad for business.'

'Oh!'

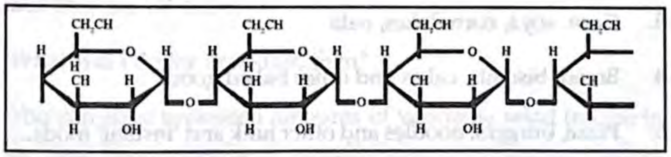
'The only source of sweet food for our ancestors, was fruit. And even that depended on the season. Even when we studied in school, fruits were seasonal. There was an apple season, a mango season, a season for grapes...and we only ate sweets and fried snacks during festivals like Deepavali or Pongal. Today, we have fruits that have been modified to stay fresh all through the year. To make matters worse, there are sweet and snack shops in every corner of every road. If you're a diabetic patient – it doesn't matter if you have been one for years now, or if you found out that you had diabetes yesterday – think of your body as a jar of sugar that has already been filled to the brim thanks to your consumption of sweets, bread, biscuits etc. If you keep adding to the sugar, it's going to overflow!'

'So, what should we do?'

'You have to reduce the sugar in that bottle. The first rule is to immediately give up all food that is sweet or has sugar. The second rule is to learn to look at carbs and sugar with the same lens.'

'When should I give up carbs, doctor?'

'Preferably yesterday. But I'll be lenient and say that you can stop eating carbs from tonight.'



'But doctor – carbohydrates are what life forms are made of! Isn't this what is converted into energy. How can we stop eating carbohydrates?'

'Foods with high fibre also have a certain amount of carbs. That is enough for our body. Which brings us to the third rule – eating foods with high saturated fat content.'

'Fatty foods? Like paneer, cheese, butter and ghee? Won't we have problems if we consume all this fat?'

'No! We had been treating our bodies like petrol engine vehicles. We are now going to convert them into diesel engine vehicles. You see, there are two ways by which our body can get fuel to convert to energy. One of them is carbs – and much like our petrol engine cars, glucose powered bodies are high maintenance, and don't give as much 'mileage' as you'd like, because you can tire easy, and constantly require refueling. The energy that comes from fat is called 'ketones'. Ketones, unlike fat, give a sustained release of energy that will keep you satiated, and help you power through the day.'

'Ok doctor. Now what are the foods that I should avoid?'

'Here is the list:

1. Sweets & sweeteners – sugar, honey, jaggery, fruit juice, palm sugar and any other sugars.
2. Grains – Rice, wheat, millets, rava, maida, and all related products like vermicelli, pasta etc which are made of grains.
3. Corn, soya, corn flakes, oats
4. Bread, biscuits, cakes and other baked goods
5. Pizza, burgers, noodles and other junk and 'instant' foods...'

5C Salad

Ingredients

Cabbage: 250 gms

Red Capsicum – 1

Yellow Capsicum – 1

Green Capsicum – 1

Cauliflower – 10 small florets

Carrot (medium sized) - 1

Olive Oil – 2 tablespoons

Cottage Cheese/Panneer - 100 gms

Salt & Pepper – To taste

Method

Clean the vegetables thoroughly and chop into small pieces. Then, mix in two spoons of Olive Oil, and the required salt. Place this in a microwave oven for five minutes in the normal mode. Take it out of the oven, and mix in chopped pieces of panneer. Sprinkle some pepper on top, and a simple, healthy salad is ready!

'Oh my, doctor! That means I cannot eat anything! How can we survive without our rice, idlies and dosas?'

'But they are all carbs.'

'What will I do for breakfast, then?'

'You can have unlimited amounts of vegetable salad (recipe in the box). You can also have a handful of nuts – walnuts, pistachio, almonds or even roasted peanuts. You can even have half a grated coconut. And speaking of breakfast, here's the fourth rule – breakfasts are not necessary. Eat only when you are hungry.'

'You mean breakfast isn't necessary?!'

'That's only the first shocker of many to come!'

CHAPTER SEVEN

Eat Only When You're Hungry!

'Doctor, you told me that the fourth rule was that breakfast is unnecessary and that we should only eat when we're hungry. Does that mean we shouldn't follow usual meal times?'

'I've a simple question for you – when was the last time you felt hungry?'

'I don't understand…'

'Okay, what did you eat yesterday?'

'I had breakfast and then a coffee, rice for lunch and then another coffee, tea and biscuits at around four, roti for dinner and a glass of milk before I went to bed.'

'If you eat like this, how will you feel hunger? Hunger is vastly different from just wanting to eat.'

'They say hunger pinches the stomach.'

'Yes. Our current generation is one that has never felt hunger because they're always snacking on something or the other.'

'What has this got to do with diabetes?'

'Obesity leads to diabetes, among other health problems. It's all about the lifestyle.'

'How so?'

'When you keep eating, when you keep snacking, a lot of big corporations get to make money. Honestly, they've brainwashed us through advertisements.'

'True, doctor.'

'They tell us that if we don't eat what they show us that there will be bad consequences. For example:

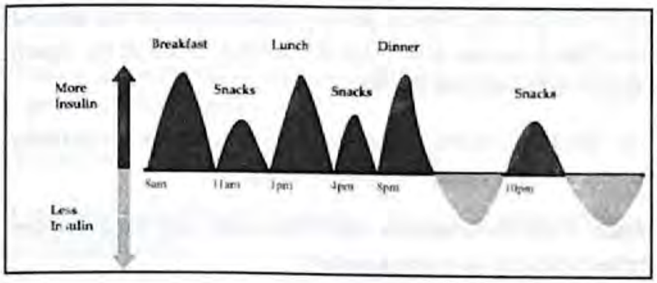
1. Breakfast is the most important meal of the day
2. We shouldn't let our stomachs stay empty and that we should constantly fill it up with something or the other
3. We need to eat on time and if we miss a meal we're done for
4. We shouldn't go to sleep at night on an empty stomach
5. Juice, bread, milk and oats are healthy foods

'But doctor, are you saying that all of this is false?'

'Yes! Take breakfast – it literally means breaking the fast. You sleep at night for eight hours, wake up and eat, thus breaking the fast.'

'Are you saying that that isn't important?'

'It's not about whether it's important or unimportant and I'm not saying that you shouldn't eat breakfast either. All I'm saying is that if you're not hungry at 8 am, don't eat anything at 8 am! Breakfast isn't a duty that you are bound by. Look at this chart and you'll understand better.'

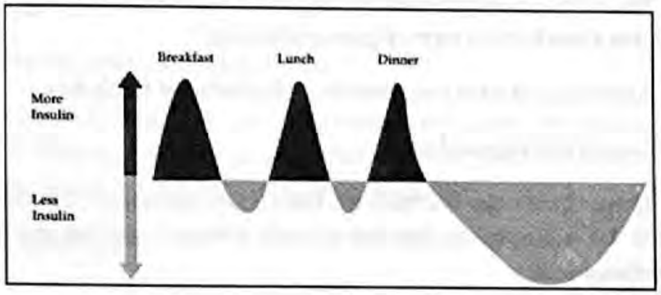


'From 8 in the morning to 10 at night, we are eating something or the other every two hours. Since we consume mostly carbs during this time, our glucose is always on the rise and insulin is constantly being secreted'

'But doctor, diabetes patients are being advised to split three meals a day into six! We're being told to eat fruit, some *sundal* or a biscuit...'

'You've seen how insulin is secreted when we eat food and consequently how insulin resistance is created. Once insulin resistance happens, diabetes and obesity follow.'

'So if we eat without snacking, our insulin levels come down and that's better for our health.'



'If the fan in our house is always switched on, it will get old soon. But if we use it only when we need it, it will last much longer. Our bodies are the same.'

'Yes. Most importantly, we must eat only when we are actually hungry and not when we feel like eating.'

'Right! Even Thiruvalluvar said that eating only when hunger strikes will keep us in good health.'

'Really?'

'Yes –

> 'அற்றது அறிந்து கடைப்பிடித்து மாறல்ல
> துய்க்க துவரப் பசித்து (944)

Which means... Once you finish eating, wait for it to digest. After it's digested, wait until you feel hungry. And once you're hungry, eat food that is healthy and agreeable to your body.'

'Wow! Thiruvalluvar has succinctly told us what Doctors have to.'

'I still remember the days when I used to come back from school wanting to eat something, and my grandmother wouldn't give me anything saying I wouldn't eat dinner properly if I ate something then.'

'Yes, today we've gotten all our kids used to the idea of an after-school snack in the form of juice and biscuits.'

'So let's look at what you *should* be eating between meals now...'

'Can we drink tea and coffee?'

'You can have sugar-free black tea, black coffee, green tea or lemon tea. Tea and coffee are best had not only without sugar, but also without milk.'

'But why can't we have milk?'

'That's a question which requires a detailed answer! We'll look at that in a later chapter.'

'Can we have any fruits?'

'If you aren't diabetic, you can have fruit. Daily intake of fruit isn't recommended.'

'Are there any fruits that are okay for diabetics?'

'Avocado, strawberries, blueberries and cranberries are good for diabetics.'

'Where can I get those fruits, doctor?'

'You'll get them in any fruit shop that has air-conditioning and valet parking.'

'Won't they be expensive then?'

'Yes, but if you consider the cost of the tablets and medicines that you'll take during your life as a diabetic, this is inexpensive in comparison.'

'What about nuts?'

'You can have Rs. 10/- worth of roasted peanuts, again, not recommended for daily consumption. A few cashewnuts are also okay.'

'Doctor, what can I eat every day?'

'Almonds, walnuts and pistachios are good for daily consumption. You can have a handful of them every day, and if you can afford it, even two to three handfuls!'

'Vegetables?'

BISIBELE BATH LCHF STYLE

Ingredients:

Cauliflower – 1 head

Coconut (grated) – 1 cup

Bisibelebath Masala (recipe follows)

Toor Dal – ¼ Cup

Oil and Mustard Seeds – for tempering

Onions (chopped) – 2

Tomatoes (chopped) – 2

Any other LCHF vegetables (according to preference)

Salt and turmeric powder – to taste

Tamarind paste – 2 tablespoons

1. First make cauliflower rice:

Take a medium sized cauliflower and break it down into small florets. Put the florets into boiling water for five minutes and then take it out and run it through the mixie. You should be left with small grain sized bits of cauliflower, that is, cauliflower rice! Use this as a substitute for rice.

2 Make Bisibele bath Masala with the following ingredients:

Dhania – 4 teaspoons

Chana Dal – 2 teaspoons

Fenugreek seeds – ½ teaspoon

Red Chilly (dry) – 5

Cardamom seeds – 2

Bay Leaf – 1

Cloves – 2

Roast all the above ingredients well and then grind them into a paste along with 1 cup of grated coconut.

3. Cook ¼ cup of toor dal separately and keep it aside.

4. Take a frying pan and temper mustard seeds with oil. Add the chopped onions and tomatoes and any other LCHF vegetables that you prefer and saute well. Add salt and turmeric powder to the vegetables.

5. Take the tamarind paste and mix it in some water and let it boil. You can adjust the tamarind amount to your preference. Once the smell of raw tamarind has left the water, add the cooked toor dal, the masala and the vegetables. After the gravy is cooked, add the cauliflower rice and serve with a dollop of ghee.

'Ladies' Finger (Okra), Brinjals, any gourd variety, cucumbers, capsicum/bell peppers and cauliflower can be eaten every day. Occasionally you can have beans, broad beans, string beans and carrots.'

'What are my other options if I am a non-vegetarian?'

'Fish, eggs and any kind of meat.'

'Paneer, cheese, butter and ghee?'

'Definitely.'

'What kind of oil should I cook in?'

'Virgin coconut oil, butter, ghee and olive oil are recommended. Vegetable oil is a big no!'

'I know I've been asking you repeatedly, but are you sure about the fact that we can't have juice?'

'Ok I'll concede. You can have lemon juice with a bit of salt.'

'Won't I get indigestion if I eat all this?'

'Not at all. The first day you might feel a little queasy but once all that fibre has been digested, you'll really feel like a new person in the morning. Trust me.'

'I almost forgot – we are told that dates have high iron content. Are dates allowed?'

'100 grams of dates have 1 milligram of iron and 75 grams of carbs. That's 19 spoons of sugar! If you want iron, eat spinach instead.'

'Phew! So spinach is allowed as well.'

'You can have every variety of spinach that's available. 100 grams of Palak has 2.7mg of iron and just 3.6 grams of carbs!'

'What about preparations like *Bisibelebath*?'

'Sure. You can have it without rice. I'll even give you my recipe.'

'How is it possible to make it without rice?'

'Just substitute rice with cauliflower rice! It's that simple.'

'Can we eat coconut?'

'Sure. Half a lid of coconut is allowed everyday.'

'So we can have *sundal* with a bit of coconut, right?'

'Yes, but only once a day and not more than 30 grams. Make sure you pick out high protein varieties of lentils as well.'

'Chicken?'

'If you eat meat, then go ahead.'

'One of my friends is getting married and another function is coming up in the family as well. What can I eat there?'

'Eat what's allowed at home and then go to the function with a full stomach.'

'Doctor, with this diet of leaves and raw food, won't I feel like a cow?'

'You should be happy that you're capable of feeling!'

CHAPTER EIGHT

Fasting is better than Feasting

'Doctor! You say that the fifth rule is to fast. Isn't depriving ourselves of food, bad for health?'

''Instead of using medicine, fast a day', says Plutarch.'

'Isn't fasting, starving?'

'Fasting is different from starvation. When there is food at home but you choose to not eat it, you fast. A person starves only when he doesn't have access to food.'

'How can we survive without eating for too long?'

'If you have dinner at 8, go to sleep, wake up and then break your fast at 8 in the morning, you've already fasted for 12 hours! Doesn't sound so difficult now, does it?'

'I didn't realize that. It doesn't sound difficult at all.'

'So if you eat and fast in intervals of 12 hours, your body will be in good health and shape.'

'What about diabetic patients? Aren't we advised against fasting?'

'It's diabetic patients who should actually fast from time to time. We call this intermittent fasting.'

> *DISCLAIMER: If you are a diabetic patient and taking medicine for both diabetes and blood pressure, do not attempt fasting without the advice and instructions of your doctor. If you take your tablets and try fasting, you will experience low sugar conditions.*

'Whenever dogs and cats are sick, they don't take food. If you have a pet at home, you might have noticed this. Nature ensures that the appetite is turned off during sickness. Even at home, when children are sick, they hate taking food. It's only when you get better that your appetite starts to return. To eat when you are sick is to feed your sickness.'

'But doctor, no one fasts nowadays.'

'Fasting is a fantastic medicine which was discovered by our ancestors. Almost every culture or religion incorporates fasting in one way or another.'

'Won't we be exhausted without food?'

'How do you feel after eating feasts at weddings? Do you feel active? Or do you feel slow?'

'Hmm, I suppose we feel drowsy after eating so much.'

'Do you know why you feel drowsy? It's because all the blood in your body is redirected for the sole purpose of digesting all the excess food you've consumed. As a result, there is very little blood flow to the brain and that's why you feel so sleepy!'

'Oh, so what happens when you fast?'

'The opposite happens. More blood flows to the brain and you become active. Not only that – remember the Toxic part of the 3Ts?'

'Yes, Doctor.'

'When you fast, your body flushes out toxins and cleans itself.'

'That means there's a doctor inside our own body!'

'Yes. We call this apoptosis. Basically, some enzymes in our body get together eliminate waste cells and tissues from our bodies.'

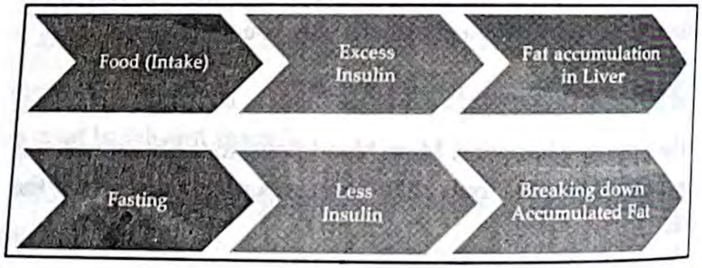
'If you keep cleaning your house continuously, the house will look clean and well maintained. Similarly, if you clean your body from time to time, you will look and feel healthy. Most importantly, diabetes patients will secrete less insulin.'

'How does our body find strength and energy when we fast?'

'In our previous chapters we discussed how carbs are like a purse and fat is like a bank. When we need energy, we reach to our 'purse' first. But what do you do when there's nothing in the purse? You head to the bank. The body begins to convert fat deposits into energy.

'Ok Doctor! But so many people today are scared to fast. Where does one begin?'

'I'll tell you, but before that let me tell you what happens to your body when you fast. When you fast for 12 hours, the first 8 hours are spent by your body converting glucose from the food that you had taken. It's only after 8 hours that the body begins to break down fat.'



'What is the advantage of fasting for diabetics?'

'If you fast regularly, your insulin levels will come down, along with your sugar levels. You will see a noticeable reduction in your waistline and size, and before you know it you won't need any medicines to control your sugar and you can say good bye to diabetes!'

'Can I start immediately?'

'You need to start step by step. For example, you can start by having your dinner at 8 PM, and instead of having breakfast as usual at 8 AM, you can push it by an hour to 9 AM. This way, you would have fasted for 13 hours.'

'If I have breakfast at 12 noon, then I would have fasted for 16 hours...'

'You can keep pushing your meal time by an hour this way and before you know it even a 24 hour fast will become simple!'

'Do I need to do anything before I start?'

'This isn't a wedding that you have to see an auspicious time or date for. You can decide today if you want to fast tomorrow.'

'Will having a heavy meal at night ensure that I don't get very hungry in the morning?'

'No. In fact, having a heavy meal at night will make you hungrier in the morning. So how you feel in the morning isn't dependent on the meal you had the previous night!'

'So what should we do as soon as we wake up?'

'Tell yourself that you're going to be fasting as you brush your teeth. Begin your day with a glass of water...'

'But Doctor, I cannot function without coffee!'

The cells in our body are programmed to die when they are considered to be unnecessary by the body. This process is known as Apoptosis.

Yoshinori Ohsumi

When our phones, laptops and vehicles stop working properly and cannot be repaired, we sell or exchange them for new ones. Apoptosis is the body's way of 'exchanging' old for new.

Another term that has been doing rounds recently is 'Autophagy', which roughly translates to 'self eating'. This refers to the natural, regulated destructive mechanisms of the cell that breaks down dysfunctional components of the cell. Going back to our previous example, if your phone falls down and the screen breaks, autophagy is akin to replacing the screen instead of selling the phone altogether (apoptosis).

The Japanese Cell Biologist Yoshinori Ohsumi received a Nobel Prize last year for his research in the field of Autophagy. Autophagy is the body's own recycling program designed to make way us more efficient, slow the aging process and prevent long term diseases like diabetes and obesity.

What does this have to do with fasting?

Fasting triggers Autophagy. When you fast, your body gets down to cleaning out the cells inside it, gets rid of crusty old parts and installs shiny new ones making you feel like a whole new person! Studies have shown that fasting has resulted in improved brain functions and lower risk for heart disease.

What prevents Autophagy?

Glucose and the insulin that is secreted as a result of it prevents Autophagy from taking place. Now do you understand why our ancestors fasted?

'Tell yourself that there's no coffee powder in the house. When you're on a fast for the first time, try to postpone your coffee for as long as you can. If you can do this, then your battle is half won.'

'Won't I get low sugar?'

'If you don't take your diabetes medicine or insulin, then there's no question of you getting low sugar. Those taking medicine must definitely consult their doctor before they try fasting.'

'What can I do while I'm fasting?'

'You can do anything and everything. You can watch TV, browse Facebook or Whatsapp, read a book…'

'But won't I feel hungry?'

'Yes, it'll come. But if you're patient, it'll go back the same way.'

'What do I do to not feel hungry?'

'There's a technique for that. Have a big bottle of water with you and keep sipping it through the day. You won't feel hungry this way.'

'Are there any other techniques?'

'Keep yourself occupied through the day. You can try gardening, cleaning, maybe watch a movie.'

'Can I go to my friends or relatives' houses?'

'Definitely. But the problem is that they might try to offer you food or something to drink. You'll have to refuse it.'

'So I can talk to them on the phone and pass time instead.'

'Yes. But be wary of talking about your fast. They might try to discourage you.'

'Hmm, I guess it's best to read something instead.'

'Definitely. You can read, you can sleep. Did you know that it's when you sleep that you burn fat?'

'Won't I feel dizzy?'

'Some people might feel dizzy. They should get their Blood Pressure checked. This happens when you take tablets to check High BP or if you are dehydrated.'

'What should we do then?'

'If you're feeling dehydrated, drink water with a squeeze of lemon and some salt.'

'Can I eat anything else?'

'You can't eat anything when you fast. You can drink as much water as you'd like.'

'Sometimes I get a headache when I miss my meals…'

'You'll definitely get a few headaches. You can have green tea, black coffee or lemon juice with salt then. Fasting is a habit.'

'Can I exercise or go walking?'

'You can, it isn't wrong. When you exercise while you fast you actually exercise better.'

'I feel like I need to urinate a lot more when I am fasting.'

'Don't worry about it. When there is extra insulin in the body, your kidneys retain water and salt. When you're fasting however, your insulin levels come down and all the retained water is flushed out. This is a good thing.'

'Will fasting cause constipation?'

'If you feel like your colon isn't clearing itself, it isn't because you're constipated but because there's no output without input. Have a lot of fibre the day before and the day after you fast.'

'My stomach rumbles when I fast, doctor.'

'A few might have that issue. Drinking water should help solve it'

'Do you tend to get angrier when you fast?'

'If you surround yourself with people eating fast food while you simply fast, then yes, you will get angry.'

'Confusion, memory issues?'

'No. In fact, you'll be clearer and sharper than ever.'

'I understand a 12 hour fast. But a 24 hour fast seems excessive. Is that even allowed?'

'The world record for fasting is 382 days – the individual survived on just water. So 24 hours is fine.'

'Will I feel extra hungry once my fast is over?'

'You'll feel hungry because you're new to fasting. Once you get used to it, you'll notice your appetite shrinking. And then you'll find yourself eating only when you're hungry.'

'Can I drink juice to break my fast?'

'I think you've been watching too many political fasts on the TV. You can break your fast with some clear soup.'

'How much can I eat?'

'Don't eat like you're looking at food for the first time in your life – if you do that, you might get heartburn. Your stomach has just had a holiday, so don't stress it out immediately. Take the time to eat slowly and chew your food. Most importantly, remember to eat foods with Low Carbs, High fat and plenty of fibre. It's important to include a glass of water before and after your meal.'

'Any tips for the person who's fasting for the first time?'

'It'll be difficult the first time, but if you keep doing it, it'll become a habit. You'll lose your dependence on carbohydrates and will understand hunger enough to eat only when its necessary.'

'What are the other benefits of fasting?'

'Do you dislike brinjals? No problem. Fast instead. Do you dislike the fact that others around you are eating meat? Super! Don't eat and fast instead. Don't know how to cook? There's no better reason to fast. You see, apart from the obvious health benefits, fasting is also a solution for most of life's problems. I highly recommend it.'

CHAPTER NINE

Rice is better than Wheat

'Doctor, usually when someone is overweight people tell them to avoid rice and eat rotis instead. Now you're telling me that rice is better than wheat!'

'The wheat that we buy these days has many harmful qualities.'

'Diabetics are also advised to have rotis in lieu of rice...are you telling me that wheat isn't good?'

'Wheat is good as long as you're not eating it. If eating wheat based rotis is best way to control sugar, then there shouldn't be any diabetes prevalent in North India where rotis have always been a part of the daily diet.'

'Yes.'

'But that isn't the case. Take Punjab, where wheat is the most predominant and famous crop. The average rate of obesity in India is 9%, but in Punjab it is 14%.'

'Oh!'

'And it's not just obesity. There is a high incidence of Celiac disease too.'

'What is Celiac disease?'

'It's a problem in the stomach that causes bloating, which eventually leads to a leaky gut, that is, the small intestine getting punctured.'

'What has this got to do with diabetes, doctor?'

'Before I tell you about the connection, you need to know about gluten, the protein found in wheat.'

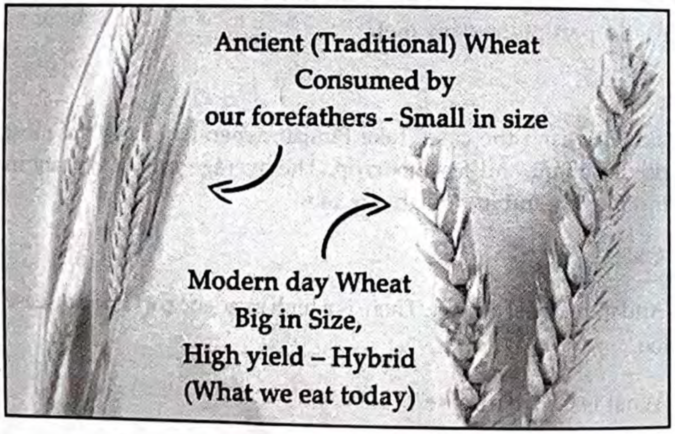
'Is gluten in refined wheat flour (maida)? Or is it in whole wheat flour (atta)?'

'It's in all wheat flours. However, the wheat flours that we are eating today is not made from natural wheat, but genetically modified wheat. It's been genetically modified from the 1970s, actually.'

'Why so?'

'Over population and famine among other reasons. Dr. Borlaug, who is known as the father of the second Green Revolution, developed genetically modified wheat.'

'What's so bad about GMO wheat anyway?'



'Anything that works against the laws of nature is not good. The wheat crops of our ancestors weren't more than four and a half or five feet tall. The grain was very small. The genetically modified wheat is just one and a half feet tall, but gives double the yield of the heritage crop. The grains are much bigger too.'

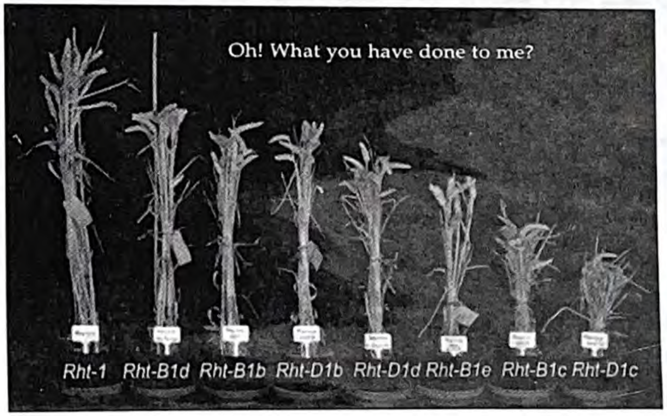
'This sounds like a good thing, doctor.'

'The researchers fused two types of wheat plants together, and when they achieved the qualities they desired, they fused this plant with another and so on until they finally got the plant they had in mind.'

'What is the effect of this?'

'When you fuse two types of wheat plants, new proteins are formed. The more you fuse, the greater the increase of these new proteins. The wheat crops that we consume today are the result of hundreds of such combinations - to the point where these proteins are almost completely man made! These wheat plants are not the product of nature and thus, carry consequences.'

'But Doctor, doesn't this wheat taste and look similar, if not same?'



'Orangutans and man are also very similar. The Orangutan monkeys have 46 chromosomes while we have 48. They don't even have tails. Does that mean you have dinner with an Orangutan at a restaurant?'

'Doctor!'

'We can't, because we have physiological and biochemical differences. Similarly, heritage wheat crops had very little gluten. But the new wheat crops have Gliadin, a kind of protein which gluten is made up of. Gliadin is the one of the main reasons behind Celiac disease.'

'What does this have to do with Diabetes?'

'Amylopectin is a kind of starch that is usually found in plants – it is where plants store glucose. There are three types of Amylopectin – A, AB and C.'

'What is special about them?'

'Lentils and beans have the 'C' variety. They have carbs, but they don't digest fully, that is, our body doesn't accept it in full. That's why we get gassy when we eat too much of peas or *rajma*. Our bodies don't have much use for it and that's why glucose levels don't rise when we eat them. Bananas and potatoes on the other hand, have the 'B' variety. Their carbs are accepted by our body to a good extent.'

'What about the 'A' variety?'

'That's the one in wheat. It becomes glucose the moment it touches our tongue.'

'Doctor, you sound like you're describing hallucinatory drugs!'

'It's not very far from that mark. Our saliva has an enzyme called amylase that absorbs type 'A' Amylopectin immediately. This results in an immediate signal for more from the brain – very similar to the effects that opium drugs have – and consequently, we end up eating more. Unnecessarily. And that's not all. There's another protein called lectin in the wheat, which prevents the hormone leptin from being secreted. If you remember our previous discussion, you'd know that leptin is the hormone that tells the brain that it has had enough food. If Leptin isn't going to be secreted, we are constantly going to feel hungry and as a result, only going to eat more and put on more weight. Having your diabetes medicine after eating wheat is no different from digging a well when you're thirsty. As if that's not enough, baked goods like cakes and biscuits also have preservatives which will interfere even more with hormone secretion and make you entirely vulnerable to weight gain and obesity.

Nine out of ten times, our grandparents passed away because of old age. But today, people seem to be dying because of some disease or the other, despite having access to the latest of medical facilities.'

'Where are we going wrong?'

'Apart from consuming genetically modified crops, we are also grinding these crops like we're making talcum powder from them, thus losing whatever fibre they possess. If the roti becomes nice and puffy on the stove, don't feel good about your cooking skills – it's puffing up only because of the gluten in it.'

'What about rice then?'

'We don't grind rice the way we do wheat, so it's alright. If you don't have diabetes, you can eat red rice or parboiled rice in small quantities.'

'What about those who do have diabetes?'

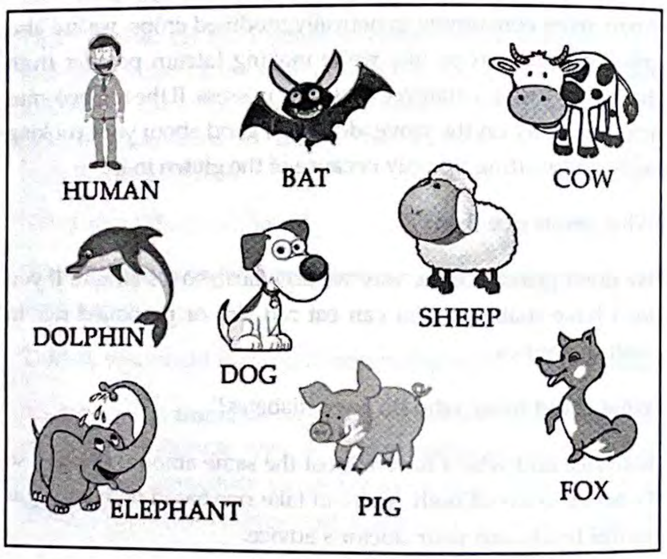
'Both rice and wheat have almost the same amount of carbs so it's better to avoid both. You can take rice based on your sugar control levels and your doctor's advice.'

CHAPTER TEN

Milk is not necessary!

'Doctor, why do you say that milk is not necessary?'

'Take a look at this photo and tell me two things: what is common between all of them, and who the odd man out is, and why?'



'Doctor, to answer your first question, they're all mammals.'

'Good. Who is the odd man out then?'

'I know that it's man! But I don't know why?'

'Puppies, calves, piglets, foals…all of them have their mother's milk. But man? Once he's done having milk from his mother, he starts having milk from the refrigerator.'

'Yes!'

'All mammals stop drinking milk from their mother after a certain period of time. We call this the weaning period. But man is the only mammal who, after weaning from his mother, continues to drink milk from other sources for the rest of his life!'

'But isn't milk good for health? We're told that it has calcium which is good for our bones…'

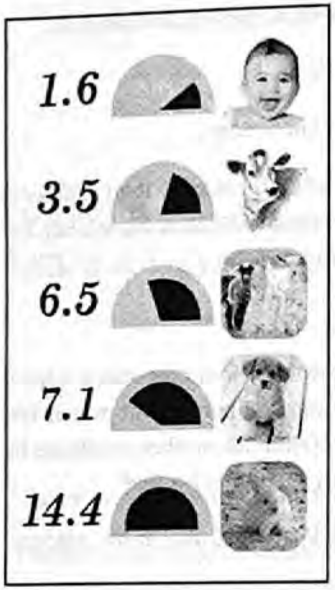
'Just because we keep saying something doesn't mean it'll become true. Have you ever noticed babies transition from drinking their mother's milk to cow's milk?'

'They tend to spit up cow's milk.'

'Yes. Do you know why?'

'No Doctor.'

'We are programmed to drink only our mother's milk and therefore our bodies will reject milk from any other animal – it makes us bloat and feel gassy. Even now, kids don't like drinking milk and I doubt any of us really like the taste of natural cow's milk. That's why dairy companies sell us flavoured milk which is loaded with sugar. We just discussed how gluten in wheat affects your stomach. Milk has a similar protein called casein. Casein is the reason doctors advise new mothers to give only



breastmilk to their children up to the age of one.'

'But doctor, both cow's milk and mother's milk have casein. Why is it that only cow's milk is bad?'

'They both have casein, but in different quantities. Mother's milk has 1.6%, whereas cow's milk has 3.5%. Puppies get milk with 7.1% and rabbits get milk with 14.4%.'

'Why is this so?'

'This is how nature works! How long does it take for our weight to double after birth? For babies, it takes 180 days, but for calves it takes just 47 days and rabbits take just 6 days...'

'What is so clever about this, doctor?'

'For man, brain development is more important than the development of his body. However, that isn't the case with animals. It is crucial for them to grow as soon as they can. Cows, for example, need to grow and be ready to graze...'

'So what happens if we drink cow's milk?'

'We will grow, definitely, but there is no brain development that takes place. Cow's milk is another reason why many children today are overweight.'

'But doctor, milk plays such a big part in our heritage and traditions. Our ancestors and grandparents grew up on milk,

did they not? There are mentions of cow's milk in plenty of Hindu scriptures as well, like the *Thirupaavai.*'

'If you read those verses in the Thiruppaavai carefully, you'll notice that the poet-saint Andal talks about how they had cow's milk only after the calves had had their share from their mother.'

'But today?'

'Cows are force-fed unhealthy diets to force lactation, injected with hormones and treated like machines. Cows, like any other mammal, can only produce milk when it has a baby, or a calf. Today's dairy industry forces cows to become pregnant through hormones and deprives calves from milk. This harmful feed and hormones are all a part of the milk that we consume today.'

'Oh no! But does that mean it's alright to drink milk from cows that graze freely and are well taken care of?'

'It's okay, but it's not necessary. Have you noticed how mammals drink milk from their mothers?'

'Yes. Through the nipple.'

'That's another one of nature's beautiful designs. You see, when milk is exposed to the air, it oxidises, which isn't good for our stomachs. When you drink directly from the source, that is through the nipple, it goes into your stomach without any contact to the outside air. '

'Okay, doctor, but are you sure we won't have any health problems if we don't have milk? How do we get calcium otherwise?'

'Cabbage has more calcium than milk. Spinach has plenty of calcium. In fact, it is milk that has very little calcium. We keep talking about calcium in cow's milk, have you ever wondered where cows get calcium from?'

'No, actually…'

'They get it from the grass. Do you see cows with knee problems?'

'No…but are you saying milk isn't necessary to prevent weak bones?'

'Recently there was a study that was done in England to determine who was more susceptible to bone damage and they noticed that there were greater incidences of osteoporosis among people who drank milk as opposed to those who didn't.'

'Does that mean our bone will become weak if we have milk?'

'No, the point is that there is no correlation between milk and bones.'

'But doctor, all those ads on television…'

'It's just clever marketing. I say clever because they have successfully managed to fool generations of people into buying it for themselves and their families.'

'What does milk do to diabetics?'

'In the year 1966, it was discovered that certain proteins and amino acids encouraged insulin secretion. In the year 2005, researchers conducted another test where children ate a meal and then some of them had a glass of milk after. Between the children who had milk and didn't have milk, insulin resistance was greater among the group that had milk.'

'So if you have milk, insulin levels will increase?'

'Yes, and by a whopping 300%. And we know that it is insulin that's the problem.'

'But they say that milk is so healthy and good for those on a diet…'

'When it comes to advertising, it's all about context and comparison. Milk in comparison to coke is certainly healthy, but is milk healthy to begin with? It is not.'

'What about the by-products of milk, like curd and yoghurt?'

'Milk has a sugar called D-Galactose, which is thankfully absent in curd and cheese. Basically, milk as such isn't necessary for good health. If you must absolutely have dairy products, try to consume only milk and milk products that are made from grass-fed cows.

'Our 80 year old grandmother insists that we all drink milk and go to bed….'

'When your grandmother had milk, it was fresh and taken directly from the cow. She didn't have any of this preservative loaded packaged milk. At any rate your grandmother has lived to see 80. Don't you want to see 80? You don't need milk to before you go to sleep, but sleep as such is very important. Good sleep is essential when it comes to preventing diabetes!'

CHAPTER ELEVEN

The Science Behind Sleep

'Doctor, you say that it's important to sleep well. How do we know if we are sleeping well or not?'

'Simple. If anyone remarks that you look tired, you are not sleeping well or if you feel like throwing your alarm clock outside the window in the mornings, you are not sleeping well.'

'Is sleep that important for our health?'

'Sleep and depression contribute to diabetes and a prolonged lack of sleep can even result in diabetes, so it's best to take care of both before it influences our bodies.'

'How does depression cause diabetes?'

'What do you do when a stray dog chases you?'

'Run like my life depends on it!'

'Once you've escaped from the dog, you'll wonder where and how you got all that energy from! You get it from a hormone called Catecholamines.'

'What are those, doctor?'

'When Catecholamines are secreted, the body gets a signal to increase glucose levels in the body for instant energy. That's why you can run so quickly when you encounter harm. Once you're out of harm's way, everything returns to normal.'

'What has this got to do with depression?'

'When the dog chases you, you will either escape from it or suffer a bite. Once the episode is over, you will return to normal. However, when you worry, you don't return to normal. This is called chronic stress.'

'Is this connected to hormone release?'

'Yes. When you worry, it is like your body thinking that there is a dog that is going to bite you and your body releases cortisol to help you prepare for it.'

'Is that harmful?'

'Yes. If your ceiling fan constantly gathers dust and you don't clean it regularly, the fan speed will slow down and it won't be long before it stops working altogether. Similarly, when you are depressed, you are susceptible to not only diabetes but also hypertension, thyroid and other diseases.'

'Aren't there tablets and medicines to control this?'

'Yes, but while they make you sleep they don't solve the root cause. You need to play detective with your doctor and find out what's causing the stress and depression. Do you remember the 3Ts? What was the last T?'

'Thought!'

'Yes. Thoughts, that is worry and stress about your past and future can really affect your health.'

'How is that even possible, doctor?'

'Worrying about things that aren't in your control are bad – it might be anything – your uncle not calling you for his son's wedding, or worrying about the stock market after you've invested in it'

'But doctor, don't students worry each time they write an exam?'

'Ah, but their worry is something that can be controlled with preparation. They have some control over the outcome. Worrying about the stock market on the other hand, is like worrying about something that you cannot control and that is harmful.'

'What should we do, doctor?'

'Take fifteen to twenty minutes every day to do some meditation, yoga, exercise or anything else that relaxes you, even painting or singing or playing an instrument or any sport.'

'Tell me more about the importance of sleep, doctor.'

'Insomnia, or the lack of sleep, is one of the prime reasons for depression. Today, most people don't even get six full hours of sleep. Lack of sleep damages your metabolism. It is when we sleep that some genes are switched on and they work to boost immunity and repair our bodies.'

'How many hours of sleep should we get on a minimum?'

'7 to 9 hours of sleep is a must. If you don't sleep well, you'll gain weight.'

'How will we gain weight?'

'When you don't sleep well, the Ghrelin hormone increases and Leptin decreases. As a result you feel hungry and your body craves a lot of food. Remember that it isn't just the quantity of sleep that matters, you need to have quality of sleep as well.'

'Do you have any tips to help us achieve quality sleep?'

'Sure, here are five easy ways to get quality sleep:

1. Keep your bedroom dark and cool.
2. Get to bed before the guests and hosts on news channels start throwing things at each other during their 'debates'. Try to get to bed at a particular time every day. If you do so, you won't need an alarm to wake up in the mornings.
3. Use your bedroom exclusively for sleep. No gadgets!
4. Put your phone on silent and keep it away from your bed. Even better, pretend like it's broken for the number of hours that you intend to sleep.
5. Wear loose and comfortable clothing to bed.

'Thank you doctor! If we follow these, then we can give Kumbhakarna a run for his money!'

Chapter TWELVE

Health Advice By The Dozen

'Doctor, we have come to the last portion of this book. Can you give a short set of instructions for our readers? The kind that they stick on their fridge?'

'Sure! Here goes:

1. Your number **one** enemy when it comes to good health is food that is, or is made of refined carbohydrates. Avoid them completely. Similarly, stop the intake of anything and everything that is sweet.
2. Ask **two** people – your grandfather and your grandmother, if the food you're eating existed during their time. If it didn't, don't buy it. Stay away from food that has the same name in every country, such as pizzas and burgers.
3. If the label on your food item loudly proclaims to be any of these **three** things – low fat, zero calorie and sugar free, don't purchase it. If it so much as mentions the word hydrogenated, throw it away.
4. LCHF (Low Carb, High Fat) are the **four** letters that you need to memorize to pave your way to good health.

5. Anything edible with an excess of **five** ingredients, or with ingredients that a fifth standard student cannot understand, are best left in the shop.
6. Any 'nutritional' food that promises **six** feet of growth and sports drinks which promise increased stamina are the equivalent of addictive drugs.
7. Try to get at least **seven** hours of sleep in a day.
8. There is no rule that you must finish eating breakfast by **eight** in the morning. Eat only when you're hungry.
9. If you take in a lot of wheat, prepare to be blessed with the stomach that will warrant the question, 'is it your **ninth** month?' (gender no bar)
10. Make the effort to do at least **ten** minutes of High Intensity Exercise. This can be running up and down the stairs, sprinting, jumping, etc.
11. Do you often find yourself stressed at work, pushing tasks to the **eleventh** hour? If you take some time in the morning to soak up the early sunshine and meditate (instead of spending this valuable time on social media), you'll find yourself healthier both mentally, and physically.
12. Try to fast for at least **twelve** hours in a day, and to fast completely for two full days in a month.'

Conclusion: Some More Information

'Doctor, what is this Vitamin D3 test that everyone is talking about?'

'Vitamin D3 deficiency is the latest epidemic to hit us after diabetes and obesity. This is also a result of lifestyle change.'

'How so, doctor?'

Tibetan Tea

Ingredients:
Boiling water - 1 Cup
Hot Milk - 1/4 cup
Tea leaves - 1 teaspoon
Butter - 1 teaspoon
Salt - for taste

Method:

Using hot water, prepare black tea. While it is hot, add one tea spoon of butter to it.

Add a pinch of salt and stir well. When the butter has completely melted, add hot milk to taste.

Don't boil this !

'One of the most important requirements for our body to get Vitamin D3 is the sun's rays. But we run away from it! We are being wrongly informed that the sun's rays are harmful and carry cancer.'

'Is being exposed to sun light really that important?'

'Yes. Vitamin D3 is a must if we want the hormones in our body to work properly. It's so important that Vitamin D3 is used as an anti-hypertensive drug to bring High Blood Pressure down to normal levels.'

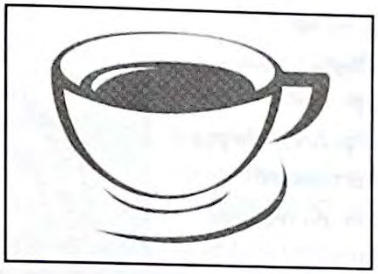
'Oh, so will we get Blood Pressure if our body doesn't have enough Vitamin D3?'

'Yes. Some people can get High BP because of Vitamin D3 deficiency. If you take the required supplement, then BP will come down. If you take Blood Pressure tablets instead, then there might be problems.'

'Then it's important that we first find the root cause behind the issue than diagnosing it immediately.'

Bullet Coffee

Take a cup of chicory-free black coffee and add 2 teaspoons of virgin coconut oil to it. This is known as bullet coffee.



'There are other benefits to Vitamin D3. For example, Vitamin D3 boosts immunity. The lack of Vitamin D3 can result in diseases like Sclerosis and even Cancer.'

'Doctor, I recently read something called the Warburg effect with respect to Cancer. Could you explain it to me a little clearly?'

'It's probably 75 years old. The scientist Otto Warburg discovered that cancer cells grew by feeding on glucose. He even won a Nobel Prize for his findings.'

'What has this got to do with the LCHF diet?'

'Cancer cells feed on glucose to grow. If you don't give them glucose, how will they grow? There is research that is being done to find out if it is possible to restrict cancer by not having glucose. Maybe in the future, diet will be a kind of treatment for cancer apart from Chemo and radio therapies.'

'Interesting. Doctor, we have discussed a variety of issues so far and I thought that we should discuss the increase in thyroid among people today as well…'

LCHF Pongal

Ingredients:

Cauliflower Rice: 2 Cups

Moong Dal: ¼ Cup

Pepper: 1 Tbsp

Jeera: 2 Tbsp

Ginger: ½ Tsp, finely chopped

Almonds: As required

Curry Leaves: As required

Ghee: ½ Cup

For The Cauliflower Rice:

Take a medium sized cauliflower and break it down into small florets. Put the florets into boiling water for five minutes and then take it out and run it through the mixie. You should be left with small grain sized bits of cauliflower, that is, cauliflower rice! Use this as a substitute for rice.

For Pongal:

Fry the moong dal in a little ghee until the raw smell goes away. Transfer the roasted dal to a cooker and pressure cook until it turns mushy.

Now fry the pepper and jeera in ghee and set aside. Take some more ghee and roast the almonds and set aside.

Take the cauliflower rice and add the cooked dal, roasted jeera and pepper and a little hot water. Then add salt and ginger, and bring this mixture to heat with the leftover ghee. Once the Pongal has reached consistency, add the roasted badam and serve hot.

'Our body is controlled by the Nervous System. The Autonomic Nervous System is one part of the nervous system. This is the part of the nervous system that controls your breathing, digestion, even the beating of your heart.'

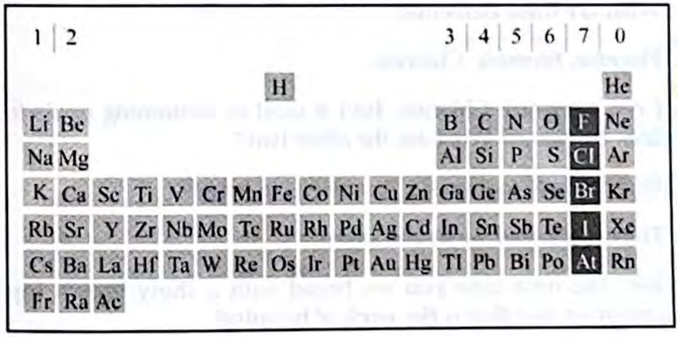
'Oh!'

'The Autonomic Nervous System consists of the Sympathetic and the Parasympathetic Nervous systems. To put it simply, blood pressure is Sympathetic and is caused by your body's reaction to the environment. If you are facing harm, for example, your body immediately recognizes that something bad is going to happen and secretes hormones that will protect you and rushes blood flow to the brains to help you overcome what is happening to you.'

'Yes Doctor, we discussed this when we talked about the dog chasing us. What does the Parasympathetic nervous system do?'

'The Parasympathetic nervous system directs blood flow away from the brain – like for digestion and cell repair. This happens when you're sleeping or relaxing.'

'Ok Doctor. But what has this got to do with Thyroid?'



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'When our body feels like it's under threat or in an emergency situation, it is the adrenal gland that kicks in with hormone secretion. When it isn't feeling this way, it is the thyroid gland that plays the role of secreting hormones. What is important to note is that both cannot function at the same time. It is either the adrenal gland or the thyroid gland.'

'Like an on-off switch.'

'Yes. So when the body is feeling threatened or is stressed or depressed, it is the adrenal gland that functions. The thyroid gland switches itself off. The adrenal and thyroid glands function like a seesaw.'

'So what happens when someone is continuously stressed?'

'It's a problem! The thyroid gland won't work then. You can't fix this with thyroid tablets. You need to find the underlying cause of the stress and fix that.'

'Ok doctor. What connection does thyroid have with the LCHF diet?'

'There are two kinds of thyroid hormones – T4 and T3. You can get both from the Iodine that you take in from food – this is why salt and other foods are advertised as 'iodine rich' now.'

'So we need to have more iodine…'

'Yes. The problem is that there are some elements that are similar to Iodine…'

'What are these elements?'

'Fluorine, Bromine, Chlorine.'

'I can recognize Chlorine. Isn't it used in swimming pools to clean the water? What are the other two?'

'Fluorine is in toothpaste. Bromine is in bread!'

'The usual bread we buy in store?'

'Yes. The next time you see bread with a shiny brown top remember that that is the work of bromine!'

'What is the problem with these two?'

'If you look at the periodic table, you will notice that Iodine, Fluorine, Bromine appear together.'

The problem is that our body recognizes all three as Iodine and as a result we suffer from hormone imbalance, which in turn leads to more problems.'

'What has this got to do with carb intake?'

'Good question. The shift from T4 to T3 takes place in our kidneys. However, when there is too much glucose from our intake of carbohydrates in the kidney, this transformation doesn't take place properly. This is another reason behind having Thyroid issues.'

'So, if you get to the root of the problem, it becomes easier to tackle it.'

'Yes! In fact, that is the philosophy of life itself. When you get to the root of things, irrespective of whether it's good or bad, everything becomes easy and you become happy!'

Type of Food	What You Can and Can't Eat		
	Avoid Completely	Eat in Moderation	Eat Plenty/ Without Limits
Sugar, and Snacks	Sugar, Palm Sugar, Sweets Honey, Jaggery, Ice Cream		
Grains	Rice, Wheat, Corn, Oats, Vermicelli (Semiya), Semolina, Corn Flakes, Flattened Rice (Aval/Poha)	Adai/Pesarettu made with Lentils	
Vegetables	All Tubers and Root Vegetables like Potatoes, Sweet Potatoes, Yam, Beetroots etc	Guavas, Broad Beans, Kidney Beans, Peas, Yellow Pumpkin, Radish, Carrots	Cucumbers, Cabbage, Cauliflower, Capsicum, All Gourds, Avocado, Mushroom, Coconut, Ginger, Chillies, White Pumpkin, Drumstick, Chow-Chow, Garlic
Fruits	Mangoes, Oranges, Bananas, Grapes		Strawberries, Raspberries, Cranberries
Oils	Sunflower Oil, Palm Oil, Rice Bran Oil, Refined Oil, Vanaspati		Olive Oil, Butter, Unrefined Groundnut Oil, Coconut Oil
Nuts		Peanuts	Almonds, Pista, Walnut
Others	Juice, Noodles, Pasta, Breads, Buns, Biscuits, Soft Drinks, Cigarettes and Alcohol	Organic Curd/Yoghurt	Lemon Juice with salt, Cheese, Black Tea, Black Coffee, Green Tea, Heavy Cream, Panneer,Tofu
Meats			Fish, Mutton, Chicken, Red Meats, Eggs

End